Models: LG1 & LG3



Legacy® Gold Series Battery Charger
Owner's Manual

I.B. 1592
REV: A

To be automatically connected to your closest Service Center, call us toll-free at:
1-800-DOUGLAS (1-800-368-4527)
Or, visit us at: http://www.douglasbattery.com/

Model:	S/N:	AC Input Voltage:
Installed by:		Date:

IMPORTANT
Read and understand your user's manual before installing, operating, or servicing this product. DO NOT DESTROY THIS BOOK

AC LINE VOLTAGE LETTER CODES

The following table describes the code letters to be used in new charger part numbers to indicate the AC line voltage(s) and AC line frequency at which the charger can be operated.

Code Letters	Voltage(s) (volts rms.)	Line Frequency (Hz)	Comments
B	208/240/480	60	Applicable to all charger families; single or three phase chargers.
A	120/208/240	60	Applicable to all charger families; single phase chargers only.
D	220/380/440	50	Applicable to all charger families; single or three phase chargers.
J	480/550/600	60	Applicable to all charger families; single or three phase chargers.
T*	208	60	Use only for special designs; single or three phase.
W*	240	60	Use only for special designs; single or three phase.
X*	240/480	60	Use only for special designs; single or three phase.
Y*	480	60	Use only for special designs; single or three phase.
	SPECIAL VOLTAGES	UNSPECIFIED	Use only for special designs; Contact the plant for further information.
* Replacement part numbers for chargers with such letter codes shall be referred to the charger's tables with code letter "B"			

SPECIALTY CHARGER OPTIONS LIST

Check items included (✓)

✓	Suffix	Description	Kit part #**	
	C6	6' of #10AWG AC Cord with 30 AMP Plug.*	(3ph) X225-77-2	(1ph) X225-77-4
	C8	8' of #10AWG AC Cord with 30 AMP Plug.*	N/A	
	C10	10' of #10AWG AC Cord with 30 AMP Plug.*	N/A	
	C12	12' of #10AWG AC Cord with 30 AMP Plug.*	N/A	
	CF	10' of #8AWG AC Cord with 50 AMP Plug.*	N/A	
	CF12	12' of #8AWG AC Cord with 50 AMP Plug.*	N/A	
	CR	6' of #10AWG AC Cord with 30 AMP Plug and 30AMP receptacle.*	(3ph) X225-77-1	(1ph) X225-77-3
	D	Charger with AC Disconnect Switch.		
	HD3	6' of #10AWG AC Cord with 30 AMP Plug.*	(3ph) X225-77-2	(1ph) X225-77-4
	HD4	6' of #10AWG AC Cord with 30 AMP Plug and Receptacle.*	(3ph) X225-77-1	(1ph) X225-77-3
	L13	13' of DC cable.	See OUTPUT CABLE	
	L15	15' of DC cable.	See OUTPUT CABLE	
	L18	18' of DC cable.	See OUTPUT CABLE	
	L20	20' of DC cable.	See OUTPUT CABLE	
	L25	25' of DC cable.	See OUTPUT CABLE	
	L30	30' of DC cable.	See OUTPUT CABLE	
	P	Parallel DC cables, standard size.	N/A	
	PP	Charger shipped on a Plastic Pallet	N/A	
	Q	AC input change Quick Tap™	N/A	
	S	Series DC cables	N/A	
	T	Block Out Timer switch.		
	WF	Ferro Charger with WaterGenius P/N 1003 position front		
	WFB	Ferro Charger with WaterGenius P/N 1003 position front, DC cables through bottom.		
	WR	Ferro Charger with WaterGenius P/N 1006 position right		
	WGF	Ferro Charger with WaterGenius P/N 1006 position front (door)		
		Stacking Hardware Kit**	X225-99-0-2	
		Wall Mounting Brackets**	X225-99-0-1	

*When AC cord is installed at the factory only one input voltage is marked on the charger.
**Accessories

Note: refer specialty charger part numbers to the standard models contained in this manual.

TABLE OF CONTENTS

IMPORTANT SAFETY INSTRUCTIONS

1) This manual contains important safety and operating instructions. Before using the battery charger, read all instructions, cautions, and warnings on the battery charger, the battery, and the product using the battery.
2) These chargers are designed to charge industrial flooded lead-acid batteries.
3) Read and understand all setup and operating instructions before using the battery charger to prevent damage to the battery and to the charger.
4) Do not touch non-insulated parts of the output connector or the battery terminals to prevent electrical shock.
5) During charge, batteries product hydrogen gas, which can explode if ignited. Never smoke, use an open flame, or create sparks in the vicinity of the battery. Ventilate well when the battery is in an enclosed space.
6) Do not connect or disconnect the battery plug while the charger is on. Doing so will cause arcing and burning of the connector resulting in charger damage or battery explosion.
7) Lead-acid batteries contain sulfuric acid, which causes burns. Do not get in eyes, on skin, or on clothing. In cases of contact with eyes, flush immediately with clean water for 15 minutes. Seek medical attention immediately.
8) Only factory qualified personnel can service this equipment. For service, contact the nearest Douglas Battery authorized representative at: 1-866-443-9433.
9) De-energize all AC and DC power connections before servicing the charger.
10) This charger is not for outdoor use.
11) Do not expose the charger to moisture. Operating conditions should be 0° to 104°F; 0 to 70% relative humidity.
12) Do not operate the charger if it has been dropped, received a sharp hit, or otherwise damaged in any way.
13) For continued protection and to reduce the risk of fire, install chargers on a floor of non-combustible material such as stone, brick, or grounded metal.

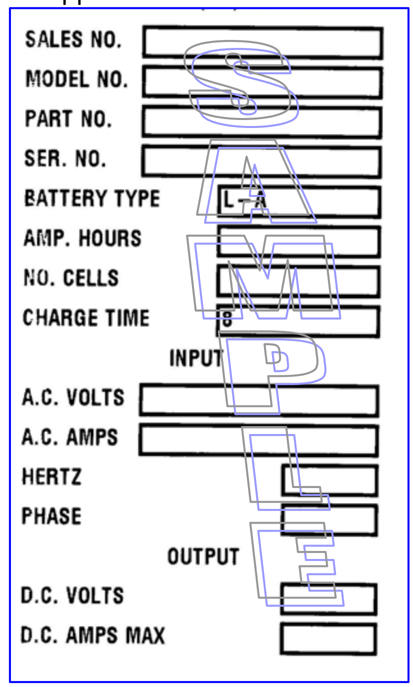
WARNING: The shipping pallet must be removed for proper and safe operation.

INSTRUCTIONS DE SÉCURITÉ IMPORTANTES

1. Ce manuel contient des informations et des consignes importantes pour l'installation et l'utilisation du chargeur de batteries industrielles. Avant tout emploi, il est fortement conseillé de lire l'ensemble des instructions, recommandations, et avertissements concernant le chargeur et la batterie.
2. Ce chargeur a été conçu pour la charge des batteries industrielles de type plomb-acide dites « ouverte ». (il ne peut pas être adapté pour les batteries étanches.)
3. Lisez toutes les consignes d'installation et d'utilisation avant d'employer le chargeur de batteries afin de prévenir tout dommage envers la batterie et/ou le chargeur.
4. Ne pas se mettre en contact avec les pièces sous-tension non-isolées tels que la prise de charge ou les éléments de connexion de la batterie pour empêcher tout choc électrique.
5. Pendant la charge, le dégagement d'hydrogène rend l'emploi de feu strictement interdit: « risque d'explosion ». Ne jamais fumer, employer une flamme nue ou créer d'étincelles à proximité de la batterie. Ventiler suffisamment le local de charge pour éviter toute condensation de gaz dans un espace restreint.
6. Ne brancher ou débrancher la batterie que si le chargeur est à l'arrêt. Procéder ainsi permet d'éviter d'endommager la prise de charge et de causer des dommages au chargeur ou l'explosion de la batterie.
7. Les batteries d'acide que plomb contiennent de l'acide sulfurique pouvant causer des brûlures. Eviter le contact avec les yeux, la peau ou les vêtements. Dans le cas d'un contact avec les yeux, rincer aussitôt avec de l'eau propre pendant 15 minutes et consulter un médecin immédiatement.
8. Seul le personnel qualifié par l'usine peut entretenir cet équipement.
9. Avant toute intervention d'entretien ou de réparation, il est impératif de s'assurer que le chargeur est hors tension ainsi que la batterie déconnectée du chargeur.
10. Le chargeur n'est pas conçu pour fonctionner en usage extérieur.
11. Ne pas exposez le chargeur à l'humidité. Les conditions de fonctionnement doit être comprise entre -15° et + 40°C avec une humidité relative de 0 â de 70%.
12. Ne pas mettre en fonctionnement le chargeur s'il a reçu un choc mécanique ou tout autre dommage de quelque façon.
13. Pour une protection permanente et pour réduire le risque du feu, installez les chargeurs sur un plancher ou un matériel non-combustible tel qu'un mur plein en béton, en brique ou l'acier.

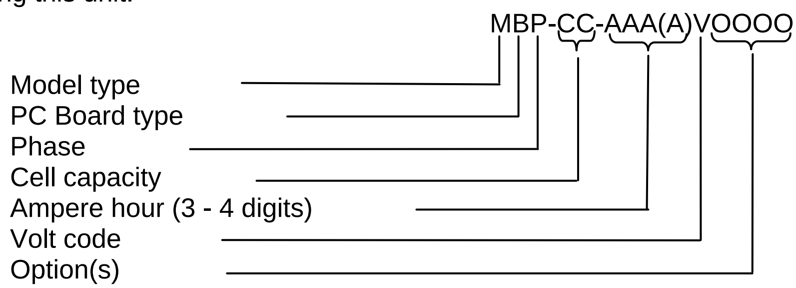
TECHNICAL INFORMATION

The nameplate, located on the outside of the charger, should be used to check this application before installation.



Part Number

This number specifies in general the characteristics of this particular charger and for this reason it is required in any discussion or correspondence regarding this unit.



Serial Number

This number indicates complete information about the specific charger. It must be supplied with the part number on any correspondence or discussion regarding this charger.

Battery Type

The chemical content construction of the battery this unit is designed to charge is given in this part of the nameplate. (L-A = Flooded Lead-Acid)

Ampere-Hours

The information supplied here is the ampere-hour battery capacity which this unit has been factory adjusted to recharge. Charging batteries of ampere-hour capacities not specified here might cause the charger to deviate from the specifications.

Cells

This portion of the nameplate gives the number of cells this unit will charge. **This number must match exactly with any battery connected to the charger output.**

Input AC Volts

The nameplate shows the input voltage(s) accommodated by this charger.

IMPORTANT: The charger will operate only on nominal line voltages stamped on the nameplate.
Failure to select the correct voltage will result in damage to the charger and/or the battery.
The Voltage Conversion section of this manual provides jumper settings for a specific input voltage.

Input AC Amps

The external fusing and/or the line disconnect circuit breaker should be as specified in the National Electrical Code. (AC fuse values can be found on the decal inside the charger).

Hz

This gives the frequency in cycles per second of the AC input voltage. Under no conditions operate charger at a different frequency or from a generator with unstable frequency.

Phase

- Number "1" indicates a Single Phase Charger
- Number "3" indicates a Three Phase Charger.

A single phase charger can be operated from a single phase line, or from two lines of a three phase line, provided that the line voltage is correct.

DC Volts

This gives the nominal DC output voltage of the system.

Rated DC Amps

This is the nominal DC value of current that this unit will deliver to a battery that is 100% discharged.

INSTALLATION

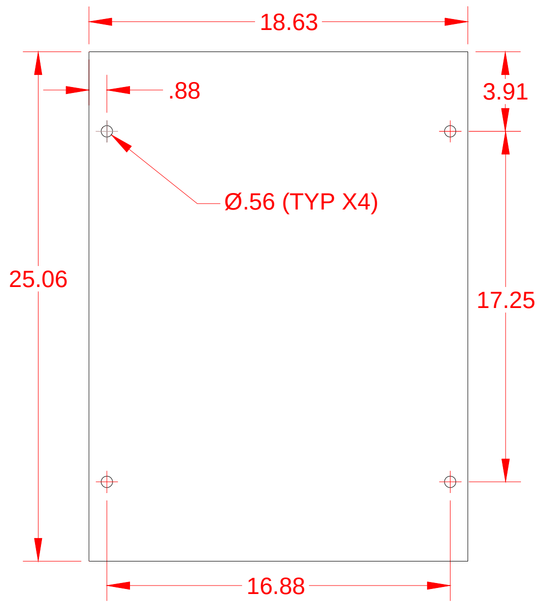
WARNING: The shipping pallet must be removed for proper and safe operation.

Location

For maximum trouble-free service, choose a location which is free of excess moisture, dust, and corrosive fumes. Also, avoid locations where temperatures are high or where liquids will drip on the charger. Allow six (6) inches of clearance at rear and sides of the charger for air circulation. Do not obstruct the ventilating openings or the space under the charger.

Stacking Multiple Chargers

These chargers can be stacked up to a maximum of 3 units high. Chargers are not designed to be stacked side by side due to ventilation requirements.

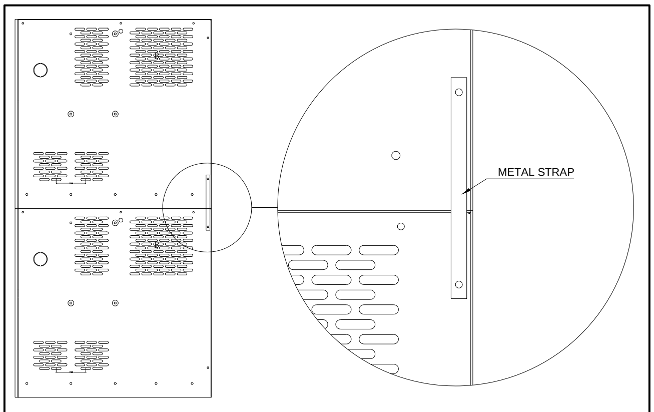


Single Phase chargers require holes drilled on the top. Use drawing template for drills.

1. Position the first charger so that a minimum of 6 inches of space is between the charger and any wall, and 12 inches between the charger and any other equipment.
2. Place the second charger on top of the first. Align the bolt holes on each charger.
3. Fasten both charger cabinets together securely using 3/8" bolts and nuts.

NOTE: the two bolts toward the back of the charger may be omitted if an after market metal strap (about 8 inches) is used to secure both chargers. Remove existing 1/4" screws of the chargers' sides and attach strap with screws. Refer to picture. Hardware kit # X225-99-0-2 can be ordered to attach two chargers.

4. Repeat steps 2 and 3 for the third charger.
5. Stacked chargers must be fastened to the wall using devices suitable for the wall construction and the bolt holes at the top of the highest charger.



TWO STACKED CHARGERS, RIGHT SIDE VIEW

NOTE: Ambient temperature at all levels cannot exceed 104°F / 40°C.

Electrical Connections

To prevent failure of the charger, be sure it is connected to the correct line voltage.

Single phase units:
Connect power to the charger as follows:
Phase A to L1 (fuse block)
Phase C to L2 (fuse block)

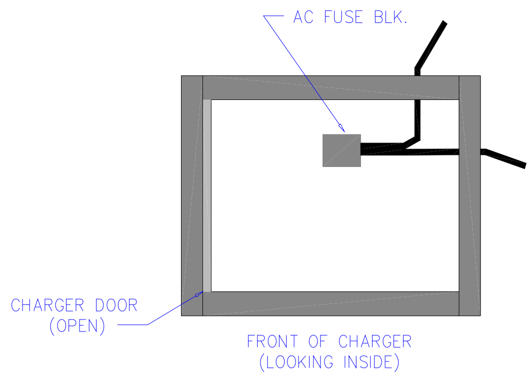
Three phase units:
Connect all the chargers as follows:
Phase A to L1 (fuse block)
Phase B to L2 (fuse block)
Phase C to L3 (fuse block)

Connecting Input Power

WARNING: Make sure the disconnect is in the OFF position and the battery is disconnected before connecting the input power to the terminals of the charger.

Connect the input power to the appropriate terminals, ***including ground***. Follow your local electrical or National Electric Code in making these connections.
The figure that follows shows both the top and right side installation options for routing the incoming power cable.

IMPORTANT: When the AC Disconnect Switch is factory installed connect the input power to the Switch instead the AC fuse block.



AC Disconnect

The user must provide suitable branch circuit protection and a disconnect method from the AC power supply to the charger to allow for safe servicing. (Even if the charger has an optional factory installed Disconnect Switch)

Plug Polarity

The charging cable is connected to the DC output of the charger with the positive lead marked RED. The output polarity of the charger must be strictly observed when connecting to the battery (read warning above). Improper connection will open the DC fuse.

Grounding the Charger

DANGER: FAILURE TO GROUND THE CHARGER COULD LEAD TO FATAL ELECTRIC SHOCK. Follow local codes or National Electric Code for ground wire sizing.

Connect a grounding conductor to the lug provided on the horizontal support panel. This lug is marked as shown:



DESCRIPTION OF OPERATION

General
This battery charger is designed to charge flooded lead-acid storage batteries only of the cell and ampere-hour rating as marked on the nameplate.

Beginning the Charging
When a battery is connected to the charger, the control board senses voltage and after a 5 second delay, the charger energizes. During this delay the **CHARGING** LED flashes.
NOTE: For ***Deluxe*** type of chargers; a programmable Auto Start delay can be set anywhere from 0 up to 25 hours. Read more about each type of charger under the heading OPERATING INSTRUCTIONS

Charging
Charging current is determined by the battery voltage and interaction of the ferroresonant charger. Charging current tapers automatically as battery voltage rises during the charge. As the battery charges, the LED bar graph will display the percentage of battery capacity.

Power Diodes
The power diodes rectify the output of the ferroresonant transformer.

AC Power Fail
The charger will not detect an AC power fault or AC fuse open. **If the AC power fails with a battery connected to the charger during a charge cycle, the charger will reset and start a new charge cycle when power is restored.**

Parallel Charging (Optional)
Available for *Deluxe* chargers only (Auto Start delay is required)
In parallel charging, batteries must have an equal number of cells and must match the charger nameplate's ratings. Ampere-Hour rating of charger must be equal to the ampere-hour of both batteries combined. Theoretically, charging current is equally divided between both batteries provided that batteries % of discharge and ages are equal. Make sure both batteries are connected before charge cycle starts.

Series Charging (Optional)
In series charging, the voltages of both batteries add up and must match charger's nameplate rating. Charger's ampere-hour rating must be equal to each of the batteries ampere-hour rating. Charge cycle will not start unless both batteries are connected.

AC Disconnect (Optional)
When an AC disconnect is installed, access to the charger through the front door is denied unless the AC disconnect is switched off. When the AC disconnect is in the off position, power is only present at the disconnect switch input terminals. Make sure that main breaker is switched off before working on the charger.

AC Input Change Quick Tap™ (Optional)
Quick Tap™ is a feature to Douglas chargers that allows the user to change AC input easily and quickly. See the heading VOLTAGE CONVERSION for more information.

OPERATING INSTRUCTIONS

Read operating Instructions for the type of control board that matches your charger.

CONTROL BOARD

Normal Operation

1. Make sure that the battery is properly matched for the particular charger. For charger characteristics refer to the nameplate label located on the front panel of the charger. Failure to properly match charger and battery can result in damage to both.

2. Idle Mode: When AC input voltage is applied to the charger and no battery is connected, the **POWER** LED will be lit. This message will display in rotation on the front panel display:
   Conn
   Batt

3. During Idle Mode, toggling the UP or DOWN pushbuttons will display the previous charge cycle parameters. Toggle the UP or DOWN to display the total charge time, ampere-hours delivered, highest voltage during the previous charge cycle, the number of charge cycles since the last equalize and the equalize count. Only the charge count and equalize count remains in non-volatile memory. These values will be saved even when AC power is removed. The other values will remain in volatile memory until the next charge cycle begins or if AC power is removed.

4. Plug the battery connector into the charger connector. Once the battery is connected to the charger, the **START/STOP** LED will flash for approximately 5 seconds while the display shows this message:
   Strt
   ##
   Cells

   The contactor will engage and charging will begin. The **START/STOP** LED will light steadily, the LED bar graph will indicate the percent charged status of the battery and the display will now begin to show:
   ####. # (Charger output current)
   #### (Ampere-hours returned)
   ##. ## (Time)
   #. ### (Cell Voltage)

   These values are displayed in rotation for about 2 seconds each. The display can be changed so that current or voltage, or current and voltage or all the above will be displayed. The default setting is for all the above to be displayed.

CAUTION: To prevent arcing and burning at the connector and possible battery explosion, press the **START/STOP** pushbutton first to stop the charge cycle before removing a battery that is currently on charge.

5. When the battery reaches **Gassing Voltage**, the yellow **80%** LED will light.

6. When the battery is fully charged the green **CHARGE COMPLETE** LED will light, the **START/STOP** LED will extinguish and the charger will shut off. At this time the battery is at full capacity and ready for use.

Charger Features

Auto Start/Delayed Start

Auto Start enables the battery charger to start the charge cycle automatically after the battery is connected to the charger. A programmable delay can be programmed so that Auto Start will begin after a set time period. This delay can be set through the front panel display, refer to ***d-St*** in section **User Parameter Configuration**. Auto start can be delayed anywhere from 0 up to 25 hours, in one minute intervals.

Auto Equalize Cycle

An Equalize Cycle adds a predetermined amount of time to extend the battery's charge cycle. This charger is equipped with an Auto Equalize function. This is a configurable parameter, consult your service representative for more information. The factory default setting for the Auto Equalize cycle is 3 hours of charge time for every fifth charge cycle. A charge cycle consists of at least one hour of continuous charging of the battery by the charger. Every time the battery completes a charge cycle, the charge counter is incremented. When the charge counter reaches the programmed Equalize count value, an equalize cycle will occur immediately after the battery completes its normal charge cycle. When an equalize charge cycle is pending, the **EQUALIZE** LED will flash. The equalize button can be pressed at any time during the normal charge cycle to stop the pending equalize cycle. Once the battery has completed a successful charge cycle, the **Charge Complete** LED will light and the charger will immediately go into the equalize charge cycle. The **EQUALIZE** LED will then light steadily. Pressing the EQUALIZE button during the equalize charge cycle will have no effect on the charger.

Manual Equalize Cycle

With this charger, the battery can also be equalized manually. Pressing the **EQUALIZE** button at any time during the charge cycle will activate the equalize function. Once pressed, the **EQUALIZE** LED will begin to flash indicating that an equalize cycle will occur once the battery has completed a successful charge cycle. The **EQUALIZE** button can again be pressed at any time during the normal charge cycle to stop the pending equalize cycle. The **CHARGE** counter is reset every time the battery completes a successful Equalize charge cycle. Pressing the **EQUALIZE** button during the Equalize charge cycle will have no effect on the charger.

> **NOTE**: Since Equalize charging extends the recharge time, it is best to do this when additional cooling time is available (example: on a weekend). Consult your factory representative to determine Equalize intervals that meet your needs.

Refresh Cycle

If a battery remains connected to the charger for a predetermined amount of time after a charge cycle has been completed, a Refresh charge cycle will be given to the battery. The factory default setting for the Refresh Cycle is to refresh for 20 minutes every 12 hours. This is a configurable parameter, consult your service representative for more information.

Cool Down

When a battery completes a charge cycle without error, it ideally should cool down before being used. This is a configurable parameter that can be set through the front panel display, refer to ***cooL*** in section **User Parameter Configuration**. The factory default setting for the Cool Down is 1 hour.

User Parameter Configuration

Adjusting Parameter Settings

The charger's user parameters may be configured only while the charger is in idle mode. In order to do so, press the **EQUALIZE** pushbutton and hold for approximately five seconds. The display will read **USEr** and is now ready for user parameter configuration. When you release the **EQUALIZE** pushbutton the display will then read ***diSP***. For a list of available user parameters and their definitions, see the table below.

You can scroll up through the different parameters by using the **EQUALIZE** pushbutton. In order to adjust the parameters press the **UP** or **DOWN** pushbuttons. If you press and hold the **UP** or **DOWN** pushbuttons for 3 seconds when adjusting the parameters, the options will scroll through at a rapid pace. Release the pushbutton to return to normal scrolling mode. When finished adjusting parameters, press the **START/STOP** pushbutton to exit the user parameter configuration mode and save the parameter settings. The display will now read **CONN BATT**.

Parameter	Description	Range	Default
diSP	**Display mode** 3 = displays current, ampere-hours returned, charge time and battery voltage 2 = displays current and voltage only 1 = displays current only 0 = displays voltage only	0-3	3
d-St	**Delayed start** Amount of time delay after a battery is connected to the charger before charging proceeds. Increments in 1 minute intervals.	0 min - 25 hr.	.00
CooL	**Cool Down Time** Amount of time after a complete charge cycle that a battery needs to cool down before being utilized.	0 hr. - 12 hr.	1.00 hr
EU-C	**Equalize Count** Total amount of charge cycles that need to occur before an automatic equalize charge cycle will take place. (0 indicates that no Equalize charge will occur)	0 - 20 charge cycles	5 charge cycles

Default Settings

Resetting default parameters is not recommended and could seriously affect charger/battery performance. Consult your local service representative for further information on charger settings.

Charger Faults

The charger control circuitry constantly monitors for several fault conditions. If a fault should occur, the charge in progress is interrupted, and a fault message is displayed on the front panel. A list of the faults and their descriptions follow.

Displayed Fault	Description	Fault LED	Fault Clearing
dC FuSE	Occurs when the DC fuse opens because of an excess of current.	Call Service - YES Bar Graph - Flashes	Can be reset by disconnecting the battery from the charger. Replace Fuse.
OPEn batt	Occurs when a charging battery is disconnected from the charger without first stopping the charge cycle.	Call Service - NO Bar Graph - Steady On	Can be reset by connecting a battery to the charger.
t-1 Err	Occurs when the time limit to gassing voltage is exceeded.	Call Service - NO Bar Graph - Steady On	Can be reset by disconnecting the battery from the charger.
t-2 Err	Occurs when the overall charge cycle time limit is exceeded.	Call Service - NO Bar Graph - Steady On	Can be reset by disconnecting the battery from the charger.
Lo batt	Occurs when the battery is first connected and the voltage is between 1.0 and 1.8 Volts/cell.*	Call Service - NO Bar Graph - Steady On	Can be reset if battery voltage is between 1.8 and 2.4 Volts/cell
Hi batt	Occurs when the battery is first connected and the voltage is above 2.4 Volts/cell.	Call Service - NO Bar Graph - Steady On	Can be reset if battery voltage is between 1.8 and 2.4 Volts/cell
Hot batt	Occurs when there is negative change in battery voltage.	Call Service - NO Bar Graph - Steady On	Can be reset by disconnecting the battery from the charger.

* If battery voltage is below 1.0 Volt/cell, the charger will not recognize that a battery has been connected. The display will continue to read ***Conn Batt***.

VOLTAGE CONVERSION

The charger is designed to operate from nominal line voltages as marked on the nameplate. The line voltage to which the charger is to be converted **must be one of the voltages shown on the charger nameplate**.

DANGER: POWER MUST BE DISCONNECTED BEFORE CHANGING AC INPUT CONNECTIONS.

CAUTION: THERE ARE DANGEROUS VOLTAGES WITHIN THE BATTERY CHARGER CABINET.
ONLY QUALIFIED PERSONNEL SHOULD ATTEMPT TO ADJUST OR SERVICE THIS BATTERY CHARGER

AC Input change (Standard)

***NOTE**: Chargers with optional Quick Tap™ please refer to* AC Input Change With Quick Tap™*.*

1. Change AC fuses to the value of the desired line voltage available for this charger. (AC fuse values can be found on the decal inside the charger).

2. Change jumper "L1/V" (red wire), at terminals of the Control Transformer's Primary fuse, to desired line voltage.

CAUTION: Failure to perform this step may cause the Control Trans. Primary fuse to open.

3. Change provided jumpers, on the main transformer primary tap location, as shown on the decal inside the door of the charger, or on the following charts. (Jumpers not being used are stored in the manual's envelope inside the charger).

4. Indicate the line voltage change on the decal inside the charger.

1PH. Wiring Conn. Chart

PERMANENT WIRING

WIRE	COLOR	CONNECTION
D4	ORANGE	T1 to 40

MODEL B

MOVABLE JUMPERS

		208 VOLT INPUT	240 VOLT INPUT	480 VOLT INPUT
WIRE	COLOR	CONNECTION	CONNECTION	CONNECTION
A3	BLUE	40 to 45	40 to 45	44 to 45
A3	BLUE	43 to 48	44 to 49	NOT USED
D1	GRAY	T3 to 48	T3 to 49	T3 to 49
L1/V	RED	To 208V	To 240V	To 480V

MODEL D

MOVABLE JUMPERS

		220 VOLT INPUT	380 VOLT INPUT	440 VOLT INPUT
WIRE	COLOR	CONNECTION	CONNECTION	CONNECTION
A3	BLUE	40 to 45	43 to 45	44 to 45
A3	BLUE	44 to 49	NOT USED	NOT USED
D1	GRAY	T3 to 49	T3 to 48	T3 to 49
L1/V	RED	To 220V	To 380V	To 440V

MODEL J

MOVABLE JUMPERS

		480 VOLT INPUT	550 VOLT INPUT	600 VOLT INPUT
WIRE	COLOR	CONNECTION	CONNECTION	CONNECTION
A3	BLUE	NOT USED	NOT USED	NOT USED
A3	BLUE	NOT USED	NOT USED	NOT USED
D1	GRAY	T3 to 47	T3 to 48	T3 to 49
L1/V	RED	To 480V	To 550V	To 600V

MODEL A

MOVABLE JUMPERS

		120 VOLT INPUT	208 VOLT INPUT	240 VOLT INPUT
WIRE	COLOR	CONNECTION	CONNECTION	CONNECTION
A3	BLUE	40 to 45	43 to 45	44 to 45
A3	BLUE	44 to 49	NOT USED	NOT USED
D1	GRAY	T3 to 49	T3 to 48	T3 to 49
L1/V	RED	To 120V	To 208V	To 240V
T	VIOLET	ACROSS F3	NOT USED	NOT USED

3PH. Wiring Conn. Chart

PERMANENT WIRING

WIRE	COLOR	CONNECTION
D5	RED	T1 to 40
D2	BLACK	T2 to 31

MODEL B

MOVABLE JUMPERS

		208 VOLT INPUT	240 VOLT INPUT	480 VOLT INPUT
WIRE	COLOR	CONNECTION	CONNECTION	CONNECTION
A2	BLACK	31 to 34	31 to 34	44 to 45
A2	BLACK	32 to 35	33 to 36	33 to 34
A3	BLUE	40 to 45	40 to 45	NOT USED
A3	BLUE	41 to 46	42 to 47	NOT USED
A4	ORANGE	43 to 48	44 to 49	NOT USED
A6	BROWN	35 to 46	36 to 47	36 to 45
D3	BLUE	T3 to 48	T3 to 49	T3 to 49
L1/V	RED	To 208V	To 240V	To 480V

MODEL D

MOVABLE JUMPERS

		220 VOLT INPUT	380 VOLT INPUT	440 VOLT INPUT
WIRE	COLOR	CONNECTION	CONNECTION	CONNECTION
A2	BLACK	31 to 34	33 to 34	33 to 34
A2	BLACK	33 to 36	43 to 45	44 to 45
A3	BLUE	40 to 45	NOT USED	NOT USED
A3	BLUE	42 to 47	NOT USED	NOT USED
A4	ORANGE	44 to 49	NOT USED	NOT USED
A6	BROWN	36 to 47	35 to 45	36 to 45
D3	BLUE	T3 to 49	T3 to 48	T3 to 49
L1/V	RED	To 220V	To 380V	To 440V

MODEL J

MOVABLE JUMPERS

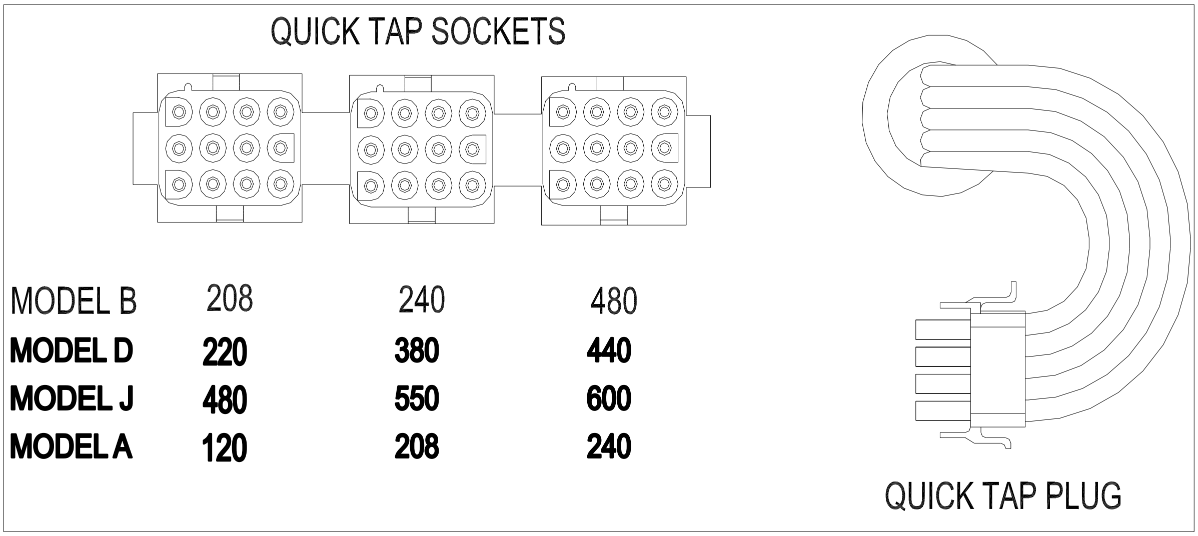
		480 VOLT INPUT	550 VOLT INPUT	600 VOLT INPUT
WIRE	COLOR	CONNECTION	CONNECTION	CONNECTION
A6	BROWN	34 to 45	35-44	36 to 45
D3	BLUE	T3 to 47	T3 to 48	T3 to 49
L1/V	RED	To 480V	To 550V	To 600V

AC Input Change with Quick Tap™
If available

CAUTION: CONNECTOR IS KEYED AND PINS ARE FRAGILE.

1. Change AC fuses to the value of the desired line voltage available for this charger. (AC fuse values can be found on the decal inside the charger).
2. Change Quick Tap™ plug to the desired line voltage as marked under the sockets.
3. Indicate the line voltage change on the decal inside the charger.

1PH. and 3PH. Wiring Conn. Illustration



Quick Tap Wire Assembly Part Numbers

Voltage Model	1Ph. QT Part Number	3Ph. QT Part Number
B	X1106-99-F1B	X1106-99-F3B
D	X1106-99-F1D	X1106-99-F3D
J	X1106-99-F1J	X1106-99-F3J
A	X1106-99-F1A	N/A

MAINTENANCE & SERVICE

The charger requires a minimum of maintenance. Connections and terminals should be kept clean and tight. The unit should be periodically cleaned with an air hose to prevent any excessive dirt build up on components. Care should be taken not to bump or move any adjustments during cleaning. Make sure that both the AC lines and the battery are disconnected before cleaning. The frequency of this type of maintenance depends on the environment in which this unit is installed.

To be automatically connected to your closest Service Center call us toll-free at:

1-800-DOUGLAS (1-800-368-4527)

Or visit us at: http://www.douglas.com/

REPLACEMENT PARTS

CIRCUIT BOARDS:

Gold Series	X1060-99-DGF-1

BASE KITS:

KIT DESCRIPTION	1PH	3PH
10" BETWEEN XMR BRACKETS	X225-99-1-10	X225-99-3-10
12" BETWEEN XFMR BRACKETS	X225-99-1-12	X225-99-3-12

SINGLE PHASE PARTS:

DESCRIPTION	PART NUMBER
DOOR	X054-99-1-6B
CAPACITOR PANEL	X052-99-1-2
TERMINAL BOARD "QT-E"	256-99-11
CONTROL TRANSFORMER MODEL A	X127-99-1A

DESCRIPTION	PART NUMBER
TOP/BACK	X057-99-1-1B
TERMINAL BOARD "E"	256-99-8
TERMINAL BOARD (CAPACITOR)	256-99-5

THREE PHASE PARTS

DESCRIPTION	PART NUMBER
DOOR	X054-99-3-17B
BACK	X057-99-3-16B
TERMINAL BOARD "A"	256-99-3
TERMINAL BOARD "C" (CAPACITOR)	256-99-6
TERMINAL BOARD "QT-A"	256-99-9
DC CABLE CLAMP (4/0)	356-5-16

DESCRIPTION	PART NUMBER
TOP	X052-99-3-12B
CAPACITOR PANEL	X052-99-3-7
TERMINAL BOARD "B"	256-99-4
TERMINAL BOARD "D" (CAPACITOR)	256-99-7
TERMINAL BOARD "QT-B"	256-99-10

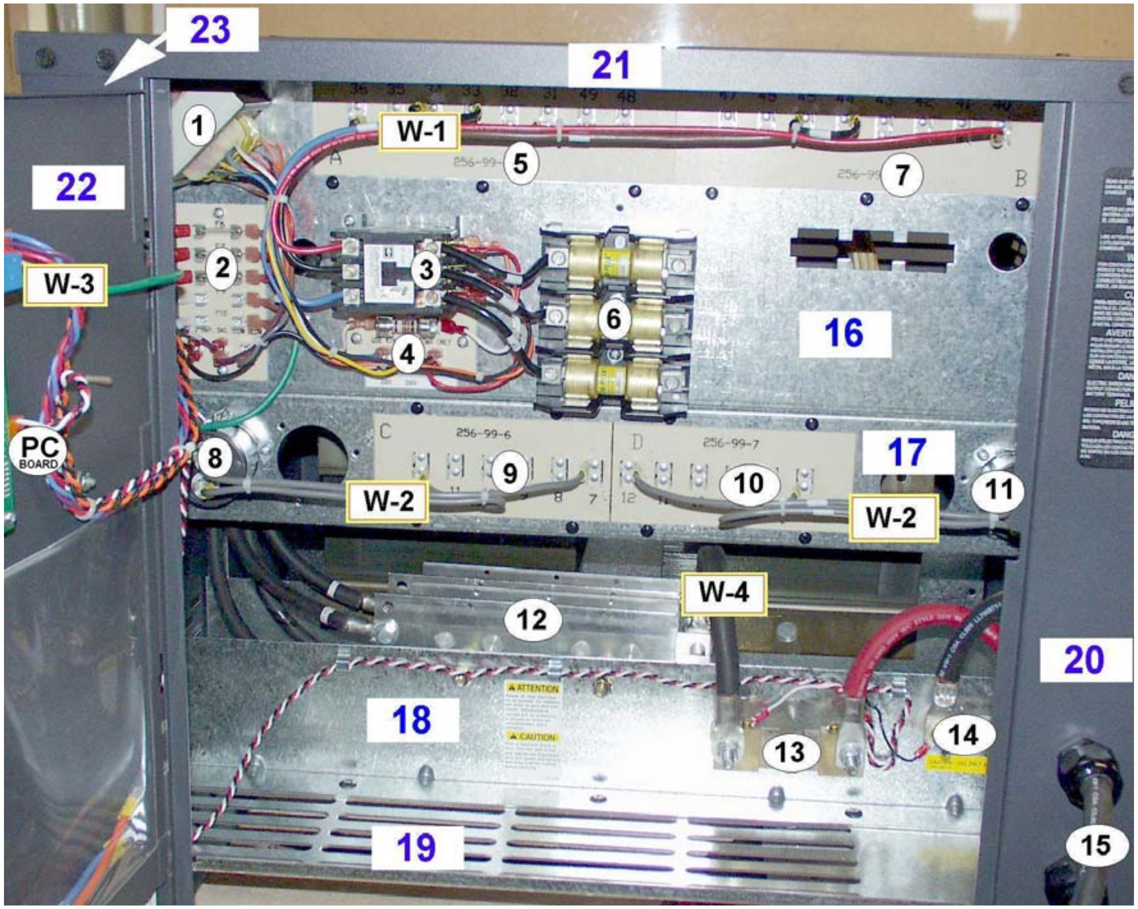
PARTS COMMON TO SINGLE AND THREE PHASE

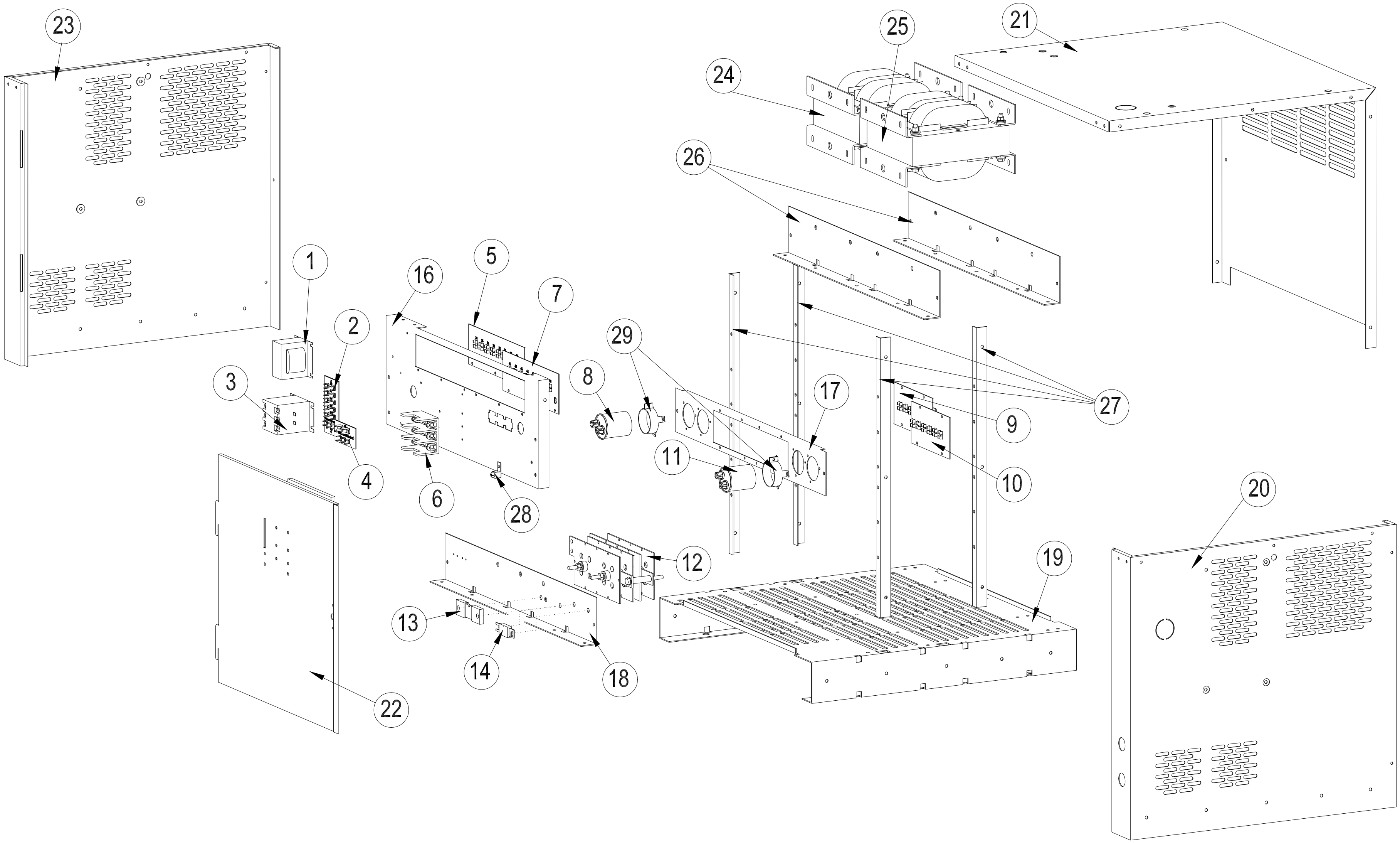
DESCRIPTION	PART NUMBER
LEFT SIDE	X057-99-0-7B
UPRIGHT	X052-99-0-6
LATCH RIVETS	164-8-6
TERMINAL BOARD "KTK"	256-99-1
FUSE REDUCER (<70A W/100A FUSE BLOCK)	X014-17-6
GROUND LUG	X012-7-24
CONTROL TRANSFORMER, MODEL B	X127-99-2B
CONTROL TRANSFORMER, MODEL J	X127-99-4J
FUSE, F5, "KTK" TERMINAL BOARD MODEL J	X014-34-7
CONTACTOR (40A)	X129-62-53

DESCRIPTION	PART NUMBER
RIGHT SIDE	X057-99-0-6B
DOOR LATCH	X044-1-32
DC CABLE CLAMP (#2, 1/0, 2/0, 3/0)	356-5-15
TERMINAL BOARD "3AG"	256-99-16
FUSE REDUCER (<40A W/60A FUSE BLOCK)	X014-17-5
CAPACITOR BRACKET	029-99-B
CONTROL TRANSFORMER, MODEL D	X127-99-3D
FUSE, F5, "KTK" TERMINAL BOARD, MODEL B AND D	X014-34-5
FUSE F6, F7, F8 "3AG" TERMINAL BOARD	X014-7-28
CONTACTOR (60A)	X129-62-54

Note: The illustration below identifies the **location** of some important components in 1ph. and 3ph. Standard Chargers. The component P/N may vary from charger to charger. (For a P/N, refer to the 'Replacement Parts' tables).

ITEM #	DESCRIPTION
1	Control transformer
2	PC Board Fuses
3	Contactor
4	Primary fuse, Control transformer
5	Terminal Board Primary, Main Transformer
6	AC Block / Input Fuses
7	Terminal Board Primary, Main Transformer
8	Capacitor
9	Terminal Board Secondary, Main Trans.
10	Terminal Board Secondary, Main Trans.
11	Capacitor
12	Heat Sink / Rectifier Assembly
13	Shunt
14	DC Fuse
15	DC Output Cables & DC Cable Clamp
16	Panel, Sub-assembly
17	Panel, Capacitor
18	Cross Member, Heat Sink
19	Cabinet, Base
20	Cabinet, Right side
21	Cabinet, Top/Back
22	Door
23	Cabinet, Left side
24	Main Transformer, Teaser
25	Main Transformer, Primary
26	Cross Member, Main Transformers
27	Upright
28	Ground Lug
29	Brackets, Capacitors
W-1	Wire Group, Primary Voltage
W-2	Wire Group, Capacitors
W-3	Wire Group, PC Board
W-4	Cable Connecting Heat Sink & Shunt





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Replacement part numbers for chargers with letter codes "T", "W", "X", and "Y" shall be referred to the charger's tables with code letter "B"

AC Input & Fuses

3PH, Volt Model B (208/240/480 V.)

3 Phase; Model B									
	AC FUSES								
Model	208 Volts			240 Volts			480 Volts		
	I AC	Value	P/N	I AC	Value	P/N	I AC	Value	P/N
6-550	5.3	10	X014-99-10	4.6	10	X014-99-10	2.3	6	X014-99-6
6-600	5.8	12	X014-99-12	5.0	10	X014-99-10	2.5	6	X014-99-6
6-775	7.5	15	X014-99-15	6.5	12	X014-99-12	3.3	6	X014-99-6
6-865	8.4	15	X014-99-15	7.3	15	X014-99-15	3.6	8	X014-99-8
6-1050	10.2	20	X014-99-20	8.8	20	X014-99-20	4.4	8	X014-99-8
12-380	7.4	15	X014-99-15	6.4	12	X014-99-12	3.2	6	X014-99-6
12-550	10.6	20	X014-99-20	9.2	20	X014-99-20	4.6	10	X014-99-10
12-680	13.2	25	X014-99-25	11.4	20	X014-99-20	5.7	10	X014-99-10
12-775	15.0	30	X014-99-30	13.0	25	X014-99-25	6.5	12	X014-99-12
12-865	16.7	30	X014-99-30	14.5	30	X014-99-30	7.3	15	X014-99-15
12-960	18.6	35	X014-99-35	16.1	30	X014-99-30	8.1	15	X014-99-15
12-1050	20.3	40	X014-99-40	17.6	35	X014-99-35	8.8	20	X014-99-20
12-1200	23.2	45	X014-99-45	20.1	40	X014-99-40	10.1	20	X014-99-20
18-380	11.0	20	X014-99-20	9.6	20	X014-99-20	4.8	10	X014-99-10
18-450	13.1	25	X014-99-25	11.3	20	X014-99-20	5.7	10	X014-99-10
18-550	16.0	30	X014-99-30	13.8	25	X014-99-25	6.9	15	X014-99-15
18-600	17.4	35	X014-99-35	15.1	30	X014-99-30	7.6	15	X014-99-15
18-680	19.8	35	X014-99-35	17.1	30	X014-99-30	8.6	15	X014-99-15
18-775	22.5	40	X014-99-40	19.5	35	X014-99-35	9.8	20	X014-99-20
18-865	25.1	45	X014-99-45	21.8	40	X014-99-40	10.9	20	X014-99-20
18-960	27.9	50	X014-99-50	24.2	45	X014-99-45	12.1	25	X014-99-25
18-1050	30.5	60	X014-99-60	26.4	50	X014-99-50	13.2	25	X014-99-25
18-1200	34.9	70	X014-99-70	30.2	60	X014-99-60	15.1	35	X014-99-35
18-1500	43.6	80	X014-99-80	37.8	70	X014-99-70	18.9	35	X014-99-35
18-1700	49.4	100	X014-99-100	42.8	80	X014-99-80	21.4	40	X014-99-40
24-450	17.4	35	X014-99-35	15.1	30	X014-99-30	7.6	15	X014-99-15
24-550	21.3	40	X014-99-40	18.5	35	X014-99-35	9.2	20	X014-99-20
24-600	23.2	45	X014-99-45	20.1	40	X014-99-40	10.1	20	X014-99-20
24-680	26.3	50	X014-99-50	22.8	40	X014-99-40	11.4	20	X014-99-20
24-775	30.0	60	X014-99-60	26.0	50	X014-99-50	13.0	25	X014-99-25
24-865	33.5	60	X014-99-60	29.0	60	X014-99-60	14.5	30	X014-99-30
24-960	37.2	70	X014-99-70	32.2	60	X014-99-60	16.1	35	X014-99-35
24-1050	40.7	80	X014-99-80	35.2	70	X014-99-70	17.6	35	X014-99-35
36-380	22.1	40	X014-99-40	19.1	35	X014-99-35	9.6	20	X014-99-20
36-450	26.1	50	X014-99-50	22.7	40	X014-99-40	11.3	20	X014-99-20
36-550	31.9	60	X014-99-60	27.7	50	X014-99-50	13.8	25	X014-99-25
36-600	34.9	70	X014-99-70	30.2	60	X014-99-60	15.1	35	X014-99-35

1PH, Volt Model B (208/240/480 V.)

1 Phase; Model B									
	AC FUSES								
Model	208 Volts			240 Volts			480 Volts		
	I AC	Value	P/N	I AC	Value	P/N	I AC	Value	P/N
6-225	3.8	8	X014-99-8	3.3	6	X014-99-6	1.6	3	X014-99-3
6-380	6.4	12	X014-99-12	5.5	10	X014-99-10	2.8	6	X014-99-6
6-450	7.5	15	X014-99-15	6.5	12	X014-99-12	3.3	6	X014-99-6
6-550	9.2	20	X014-99-20	8.0	15	X014-99-15	4.0	8	X014-99-8
6-600	10.1	20	X014-99-20	8.7	20	X014-99-20	4.4	8	X014-99-8
6-680	11.4	20	X014-99-20	9.9	20	X014-99-20	4.9	10	X014-99-10
6-775	13.0	25	X014-99-25	11.3	20	X014-99-20	5.6	10	X014-99-10
12-225	7.5	15	X014-99-15	6.5	12	X014-99-12	3.3	6	X014-99-6
12-380	12.7	25	X014-99-25	11.0	20	X014-99-20	5.5	10	X014-99-10
12-450	15.1	30	X014-99-30	13.1	25	X014-99-25	6.5	12	X014-99-12
12-550	18.4	35	X014-99-35	16.0	30	X014-99-30	8.0	15	X014-99-15
12-600	20.1	40	X014-99-40	17.4	35	X014-99-35	8.7	20	X014-99-20
12-680	22.8	40	X014-99-40	19.8	35	X014-99-35	9.9	20	X014-99-20
12-775	26.0	50	X014-99-50	22.5	40	X014-99-40	11.3	20	X014-99-20
12-865	29.0	60	X014-99-60	25.1	45	X014-99-45	12.6	25	X014-99-25
18-380	19.1	35	X014-99-35	16.6	30	X014-99-30	8.3	15	X014-99-15
18-450	22.6	40	X014-99-40	19.6	35	X014-99-35	9.8	20	X014-99-20
18-550	27.7	50	X014-99-50	24.0	45	X014-99-45	12.0	25	X014-99-25
18-600	30.2	60	X014-99-60	26.2	50	X014-99-50	13.1	25	X014-99-25
18-680	34.2	60	X014-99-60	29.6	60	X014-99-60	14.8	30	X014-99-30
18-775	39.0	70	X014-99-70	33.8	60	X014-99-60	16.9	35	X014-99-35
18-865	43.5	80	X014-99-80	37.7	70	X014-99-70	18.9	35	X014-99-35
24-550	36.9	70	X014-99-70	32.0	60	X014-99-60	16.0	35	X014-99-35
24-680	45.6	80	X014-99-80	39.5	70	X014-99-70	19.8	35	X014-99-35

Shunt & DC Fuses

Shunt, 1PH & 3PH

Ampere-hours	Value	Part Number
0 - 1050	300	X117-99-1
1051 - 1700	2 x 150	X117-99-2

DC fuse, 1PH & 3PH

Ampere-hours	Value	Part Number
225	80	X014-11-4
380 450 550	150	X014-11-3
600 680	200	X014-11-9
775 865	250	X014-11-16
960 1050	300	X014-11-17
1200 1500	400	X014-11-14
1700	2 x 250	X014-11-16

AC Input & Fuses, Multi Shift

3PH, Volt Model D (220/380/440 V.)

3 Phase; Model D									
Model	AC FUSES								
	220 Volts			380 Volts			440 Volts		
	I AC	Value	P/N	I AC	Value	P/N	I AC	Value	P/N
6-550	5.0	10	X014-99-10	2.9	6	X014-99-6	2.5	6	X014-99-6
6-600	5.5	10	X014-99-10	3.2	6	X014-99-6	2.7	6	X014-99-6
6-775	7.1	15	X014-99-15	4.1	8	X014-99-8	3.5	8	X014-99-8
6-865	7.9	15	X014-99-15	4.6	10	X014-99-10	4.0	8	X014-99-8
6-1050	9.6	20	X014-99-20	5.6	10	X014-99-10	4.8	10	X014-99-10
12-380	7.0	15	X014-99-15	4.0	8	X014-99-8	3.5	8	X014-99-8
12-550	10.1	20	X014-99-20	5.8	12	X014-99-12	5.0	10	X014-99-10
12-680	12.4	25	X014-99-25	7.2	15	X014-99-15	6.2	12	X014-99-12
12-775	14.2	25	X014-99-25	8.2	15	X014-99-15	7.1	15	X014-99-15
12-865	15.8	30	X014-99-30	9.2	20	X014-99-20	7.9	15	X014-99-15
12-960	17.6	35	X014-99-35	10.2	20	X014-99-20	8.8	20	X014-99-20
12-1050	19.2	35	X014-99-35	11.1	20	X014-99-20	9.6	20	X014-99-20
12-1200	22.0	40	X014-99-40	12.7	25	X014-99-25	11.0	20	X014-99-20
18-380	10.4	20	X014-99-20	6.0	12	X014-99-12	5.2	10	X014-99-10
18-450	12.4	25	X014-99-25	7.2	15	X014-99-15	6.2	12	X014-99-12
18-550	15.1	30	X014-99-30	8.7	20	X014-99-20	7.6	15	X014-99-15
18-600	16.5	30	X014-99-30	9.5	20	X014-99-20	8.2	15	X014-99-15
18-680	18.7	35	X014-99-35	10.8	20	X014-99-20	9.3	20	X014-99-20
18-775	21.3	40	X014-99-40	12.3	25	X014-99-25	10.6	20	X014-99-20
18-865	23.8	45	X014-99-45	13.8	25	X014-99-25	11.9	25	X014-99-25
18-960	26.4	50	X014-99-50	15.3	30	X014-99-30	13.2	25	X014-99-25
18-1050	28.8	60	X014-99-60	16.7	30	X014-99-30	14.4	30	X014-99-30
18-1200	33.0	60	X014-99-60	19.1	35	X014-99-35	16.5	30	X014-99-30
18-1500	41.2	80	X014-99-80	23.8	45	X014-99-45	20.6	40	X014-99-40
18-1700	46.7	100	X014-99-100	27.0	50	X014-99-50	23.3	45	X014-99-45
24-450	16.5	30	X014-99-30	9.5	20	X014-99-20	8.2	15	X014-99-15
24-380	13.9	25	X014-99-25	8.1	15	X014-99-15	7.0	15	X014-99-15
24-550	20.1	40	X014-99-40	11.7	25	X014-99-25	10.1	20	X014-99-20
24-600	22.0	40	X014-99-40	12.7	25	X014-99-25	11.0	20	X014-99-20
24-775	28.4	50	X014-99-50	16.4	30	X014-99-30	14.2	25	X014-99-25
24-865	31.7	60	X014-99-60	18.3	35	X014-99-35	15.8	30	X014-99-30
24-960	35.1	70	X014-99-70	20.3	40	X014-99-40	17.6	35	X014-99-35
24-1050	38.4	70	X014-99-70	22.3	40	X014-99-40	19.2	35	X014-99-35
36-380	20.9	40	X014-99-40	12.1	25	X014-99-25	10.4	20	X014-99-20
36-450	24.7	45	X014-99-45	14.3	30	X014-99-30	12.4	25	X014-99-25
36-550	30.2	60	X014-99-60	17.5	35	X014-99-35	15.1	30	X014-99-30
36-600	33.0	60	X014-99-60	19.1	35	X014-99-35	16.5	30	X014-99-30

3PH, Volt Model J (480/550/600 V.)

3 Phase;Model J									
Model	AC FUSES								
	480 Volts			550 Volts			600 Volts		
	I AC	Value	P/N	I AC	Value	P/N	I AC	Value	P/N
6-550	2.3	6	X014-99-6	2.0	4	X014-99-4	1.8	4	X014-99-4
6-600	2.5	6	X014-99-6	2.2	4	X014-99-4	2.0	4	X014-99-4
6-775	3.3	6	X014-99-6	2.8	6	X014-99-6	2.6	6	X014-99-6
6-865	3.6	8	X014-99-8	3.2	6	X014-99-6	2.9	6	X014-99-6
6-1050	4.4	8	X014-99-8	3.8	8	X014-99-8	3.5	8	X014-99-8
12-380	3.2	6	X014-99-6	2.8	6	X014-99-6	2.6	6	X014-99-6
12-550	4.6	10	X014-99-10	4.0	8	X014-99-8	3.7	8	X014-99-8
12-600	5.0	10	X014-99-10	4.4	8	X014-99-8	4.0	8	X014-99-8
12-680	5.7	10	X014-99-10	5.0	10	X014-99-10	4.6	8	X014-99-8
12-775	6.5	12	X014-99-12	5.7	10	X014-99-10	5.2	10	X014-99-10
12-865	7.3	15	X014-99-15	6.3	12	X014-99-12	5.8	12	X014-99-12
12-960	8.1	15	X014-99-15	7.0	15	X014-99-15	6.4	12	X014-99-12
12-1050	8.8	20	X014-99-20	7.7	15	X014-99-15	7.0	15	X014-99-15
12-1200	10.1	20	X014-99-20	8.8	20	X014-99-20	8.1	15	X014-99-15
18-380	4.8	10	X014-99-10	4.2	8	X014-99-8	3.8	8	X014-99-8
18-450	5.7	10	X014-99-10	4.9	10	X014-99-10	4.5	8	X014-99-8
18-550	6.9	15	X014-99-15	6.0	12	X014-99-12	5.5	10	X014-99-10
18-600	7.6	15	X014-99-15	6.6	12	X014-99-12	6.0	12	X014-99-12
18-680	8.6	15	X014-99-15	7.5	15	X014-99-15	6.8	12	X014-99-12
18-775	9.8	20	X014-99-20	8.5	15	X014-99-15	7.8	15	X014-99-15
18-865	10.9	20	X014-99-20	9.5	20	X014-99-20	8.7	20	X014-99-20
18-960	12.1	25	X014-99-25	10.5	20	X014-99-20	9.7	20	X014-99-20
18-1050	13.2	25	X014-99-25	11.5	25	X014-99-25	10.6	20	X014-99-20
18-1200	15.1	30	X014-99-30	13.2	25	X014-99-25	12.1	25	X014-99-25
18-1500	18.9	35	X014-99-35	16.5	30	X014-99-30	15.1	30	X014-99-30
18-1700	21.4	40	X014-99-40	18.7	35	X014-99-35	17.1	30	X014-99-30
24-450	7.6	15	X014-99-15	6.6	12	X014-99-12	6.0	12	X014-99-12
24-550	9.2	20	X014-99-20	8.1	15	X014-99-15	7.4	15	X014-99-15
24-600	10.1	20	X014-99-20	8.8	20	X014-99-20	8.1	15	X014-99-15
24-680	11.4	20	X014-99-20	10.0	20	X014-99-20	9.1	20	X014-99-20
24-775	13.0	25	X014-99-25	11.4	20	X014-99-20	10.4	20	X014-99-20
24-865	14.5	30	X014-99-30	12.7	25	X014-99-25	11.6	25	X014-99-25
24-960	16.1	30	X014-99-30	14.1	25	X014-99-25	12.9	25	X014-99-25
24-1050	17.6	35	X014-99-35	15.4	30	X014-99-30	14.1	25	X014-99-25
36-380	9.6	20	X014-99-20	8.3	15	X014-99-15	7.7	15	X014-99-15
36-450	11.3	20	X014-99-20	9.9	20	X014-99-20	9.1	20	X014-99-20
36-550	13.8	25	X014-99-25	12.1	25	X014-99-25	11.1	20	X014-99-20
36-600	15.1	30	X014-99-30	13.2	25	X014-99-25	12.1	25	X014-99-25

1PH, Volt Model J (480/550/600 V.)

1 Phase; Model J									
Model	**AC FUSES**								
	480 Volts			**550 Volts**			**600 Volts**		
	I AC	**Value**	**P/N**	**I AC**	**Value**	**P/N**	**I AC**	**Value**	**P/N**
6-225	1.6	3	X014-99-3	1.4	3	X014-99-3	1.3	3	X014-99-3
6-380	2.8	6	X014-99-6	2.4	6	X014-99-6	2.2	4	X014-99-4
6-450	3.3	6	X014-99-6	2.9	6	X014-99-6	2.6	6	X014-99-6
6-550	4.0	8	X014-99-8	3.5	8	X014-99-8	3.2	6	X014-99-6
6-600	4.4	8	X014-99-8	3.8	8	X014-99-8	3.5	8	X014-99-8
6-680	4.9	10	X014-99-10	4.3	8	X014-99-8	4.0	8	X014-99-8
6-775	5.6	10	X014-99-10	4.9	10	X014-99-10	4.5	8	X014-99-8
12-225	3.3	6	X014-99-6	2.9	6	X014-99-6	2.6	6	X014-99-6
12-380	5.5	10	X014-99-10	4.8	10	X014-99-10	4.4	8	X014-99-8
12-450	6.5	12	X014-99-12	5.7	10	X014-99-10	5.2	10	X014-99-10
12-550	8.0	15	X014-99-15	7.0	15	X014-99-15	6.4	12	X014-99-12
12-600	8.7	20	X014-99-20	7.6	15	X014-99-15	7.0	15	X014-99-15
12-680	9.9	20	X014-99-20	8.6	20	X014-99-20	7.9	15	X014-99-15
12-865	12.6	25	X014-99-25	11.0	20	X014-99-20	10.1	20	X014-99-20
18-380	8.3	15	X014-99-15	7.2	15	X014-99-15	6.6	12	X014-99-12
18-450	9.8	20	X014-99-20	8.6	15	X014-99-15	7.8	15	X014-99-15
18-550	12.0	25	X014-99-25	10.5	20	X014-99-20	9.6	20	X014-99-20
18-600	13.1	25	X014-99-25	11.4	20	X014-99-20	10.5	20	X014-99-20
18-680	14.8	30	X014-99-30	12.9	25	X014-99-25	11.9	25	X014-99-25
18-775	16.9	30	X014-99-30	14.7	30	X014-99-30	13.5	25	X014-99-25
18-865	18.9	35	X014-99-35	16.5	30	X014-99-30	15.1	30	X014-99-30
24-550	16.0	30	X014-99-30	14.0	25	X014-99-25	12.8	25	X014-99-25
24-680	19.8	35	X014-99-35	17.2	35	X014-99-35	15.8	30	X014-99-30

1PH, Volt Model D (220/380/440V.)

1 Phase; Model D									
Model	AC FUSES								
	220 Volts			380 Volts			440 Volts		
	I AC	Value	P/N	I AC	Value	P/N	I AC	Value	P/N
6-225	3.6	8	X014-99-8	2.1	4	X014-99-4	1.8	4	X014-99-4
6-380	6.0	12	X014-99-12	3.5	8	X014-99-8	3.0	6	X014-99-6
6-450	7.1	15	X014-99-15	4.1	8	X014-99-8	3.6	8	X014-99-8
6-550	8.7	20	X014-99-20	5.0	10	X014-99-10	4.4	8	X014-99-8
6-600	9.5	20	X014-99-20	5.5	10	X014-99-10	4.8	10	X014-99-10
6-680	10.8	20	X014-99-20	6.2	12	X014-99-12	5.4	10	X014-99-10
6-775	12.3	25	X014-99-25	7.1	15	X014-99-15	6.1	12	X014-99-12
12-225	7.1	15	X014-99-15	4.1	8	X014-99-8	3.6	8	X014-99-8
12-380	12.0	25	X014-99-25	7.0	15	X014-99-15	6.0	12	X014-99-12
12-450	14.3	25	X014-99-25	8.3	15	X014-99-15	7.1	15	X014-99-15
12-550	17.4	35	X014-99-35	10.1	20	X014-99-20	8.7	20	X014-99-20
12-600	19.0	35	X014-99-35	11.0	20	X014-99-20	9.5	20	X014-99-20
12-680	21.6	40	X014-99-40	12.5	25	X014-99-25	10.8	20	X014-99-20
12-775	24.6	45	X014-99-45	14.2	25	X014-99-25	12.3	25	X014-99-25
12-865	27.4	50	X014-99-50	15.9	30	X014-99-30	13.7	25	X014-99-25
18-380	18.1	35	X014-99-35	10.5	20	X014-99-20	9.0	20	X014-99-20
18-450	21.4	40	X014-99-40	12.4	25	X014-99-25	10.7	20	X014-99-20
18-550	26.2	50	X014-99-50	15.1	30	X014-99-30	13.1	25	X014-99-25
18-600	28.5	50	X014-99-50	16.5	30	X014-99-30	14.3	25	X014-99-25
18-680	32.3	60	X014-99-60	18.7	35	X014-99-35	16.2	30	X014-99-30
18-775	36.9	70	X014-99-70	21.3	40	X014-99-40	18.4	35	X014-99-35
18-865	41.1	80	X014-99-80	23.8	45	X014-99-45	20.6	40	X014-99-40
24-550	34.9	70	X014-99-70	20.2	40	X014-99-40	17.4	35	X014-99-35
24-680	43.1	80	X014-99-80	25.0	45	X014-99-45	21.6	40	X014-99-40

1PH, Volt Model A (120/208/240 V.)

1 Phase; Model A									
Model	**AC FUSES**								
	120 Volts			**208 Volts**			**240 Volts**		
	I AC	**Value**	**P/N**	**I AC**	**Value**	**P/N**	**I AC**	**Value**	**P/N**
6-225	6.5	12	X014-99-12	3.8	8	X014-99-8	3.3	6	X014-99-6
6-380	11.0	20	X014-99-20	6.4	12	X014-99-12	5.5	10	X014-99-10
6-450	13.1	25	X014-99-25	7.5	15	X014-99-15	6.5	12	X014-99-12
6-550	16.0	30	X014-99-30	9.2	20	X014-99-20	8.0	15	X014-99-15
6-600	17.4	35	X014-99-35	10.1	20	X014-99-20	8.7	20	X014-99-20
6-680	19.8	35	X014-99-35	11.4	20	X014-99-20	9.9	20	X014-99-20
6-775	22.5	40	X014-99-40	13.0	25	X014-99-25	11.3	20	X014-99-20
12-225	13.1	25	X014-99-25	7.5	15	X014-99-15	6.5	12	X014-99-12
12-380	22.1	40	X014-99-40	12.7	25	X014-99-25	11.0	20	X014-99-20
12-450	26.2	50	X014-99-50	15.1	30	X014-99-30	13.1	25	X014-99-25
12-550	32.0	60	X014-99-60	18.4	35	X014-99-35	16.0	30	X014-99-30
12-600	34.9	70	X014-99-70	20.1	40	X014-99-40	17.4	35	X014-99-35

OUTPUT CABLE REPLACEMENT

Charger Cable Size

Charger AH Rating	Standard Cable Gauge
0 - 775	#2
776 - 1050	1/0
1051 - 1200	2/0
1201 - 1500	3/0

NOTE: Cable Kits do not include the connector housing, only the contact, the cable grommet, and cable lugs. These standard kits are nine feet (9') long.

Replacement Cable Kits

Cable Gauge	Kit for SB 175 Connector	Kit for SB 350 Connector
#2	X225-#2-175	X225-#2-350
1/0	X225-1/0-175	X225-1/0-350
2/0	N/A	X225-2/0-350
3/0	N/A	X225-3/0-350

NOTE: Cable Kits do not include the connector housing, only the contact.

Connector Housing Part Numbers

CONNECTOR PART NUMBER	DESCRIPTION	CABLE SIZE
5804	EC	#2 – 2/0
6316	SB3	#2 – 1/0
6320	SB350 GRAY	#2 – 4/0
6321	SB350 BLUE	#2 – 4/0
6322	SB350 RED	#2 – 4/0
6323	SB350 YELLOW	#2 – 4/0
6324	SB350 GREEN	#2 – 4/0
6325	SB175 GRAY	#2 – 1/0
6326	SB175 BLUE	#2 – 1/0
6327	SB175 ORANGE	#2 – 1/0
6328	SB175 YELLOW	#2 – 1/0
6329	SB175 RED	#2-1/0

CONNECTOR PART NUMBER	DESCRIPTION	CABLE SIZE
6340	SBX350 GRAY	#2 – 4/0
6341	SBX350 BLUE	#2 – 4/0
6342	SBX350 RED	#2 – 4/0
6343	SBX350 GREEN	#2 – 4/0
6359	SBX350 BLACK	#2 – 4/0
6360	SBX350 YELLOW	#2 – 4/0
6370	SBX175 GRAY	#2 – 1/0
6371	SBX175 BLUE	#2 – 1/0
6372	SBX175 ORANGE	#2 – 1/0
6373	SBX175 YELLOW	#2 – 1/0
6378	SBX175 RED	#2-1/0
7205	YC	#2 – 3/0

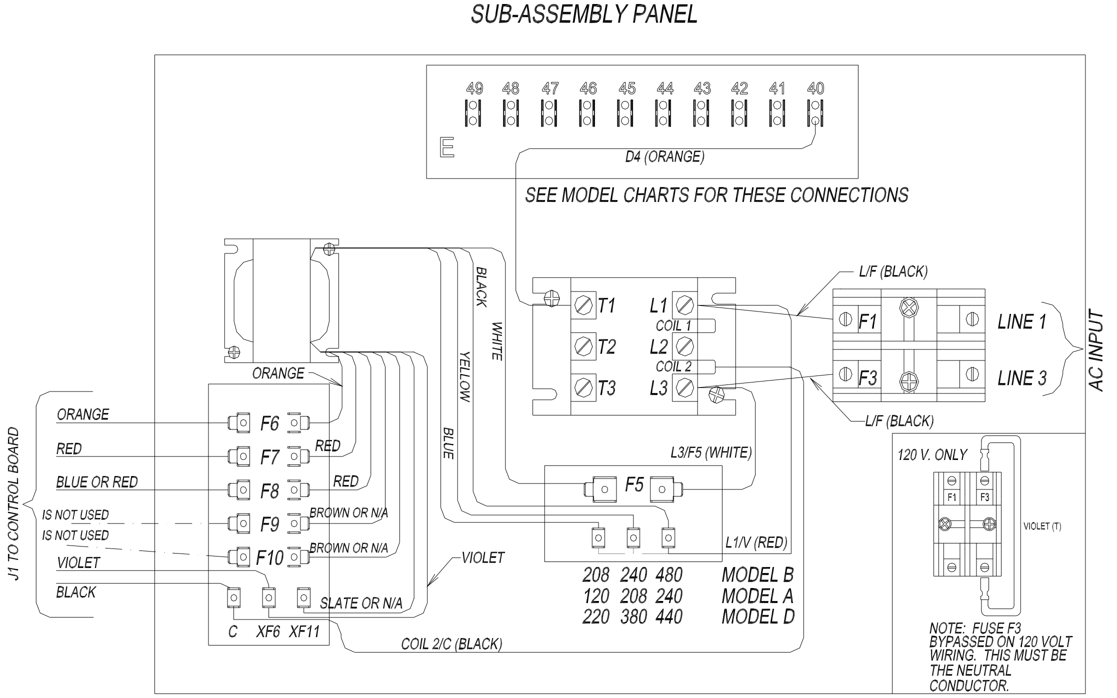
When ordering replacement cables:

1. Determine cable size and length: L13; L15; L18; L20; L25; L30
2. Determine kit part number by connector type (SB175 or SB350).
3. Determine connector housing part number.

Example:
For a charger requiring twenty feet (20') of 2/0AWG (gauge) cables and a SB350 RED connector, the <u>two</u> part numbers to order are:

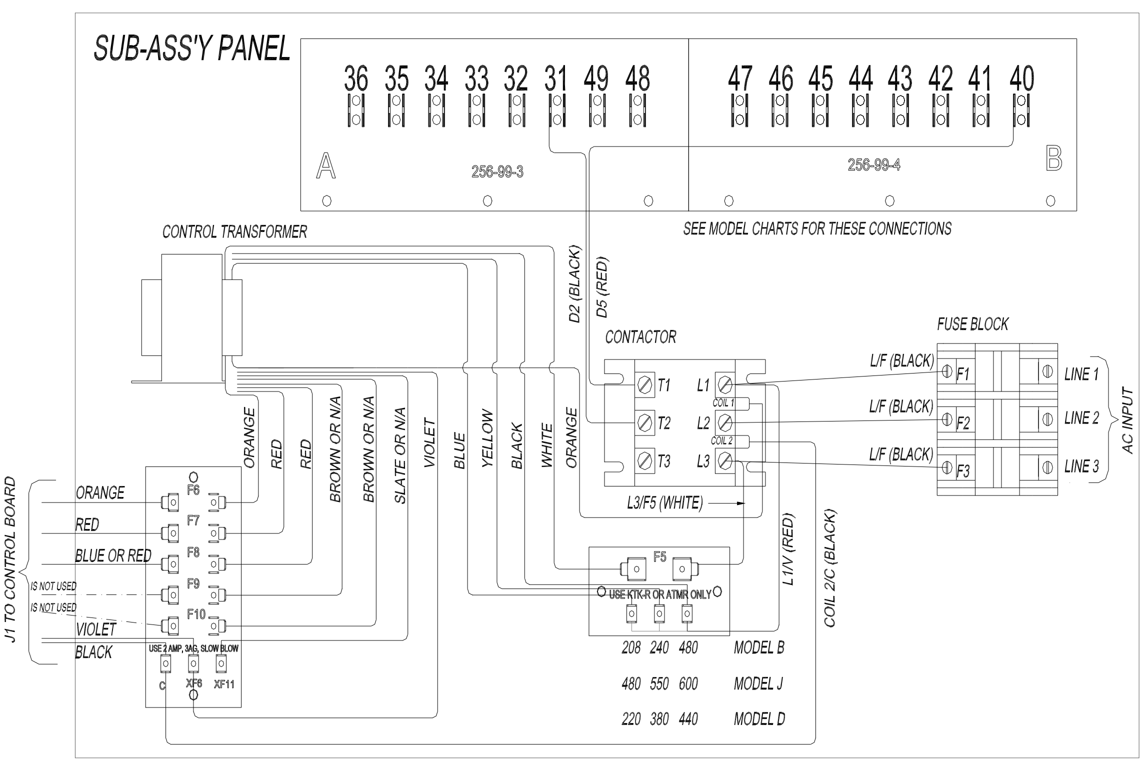
1. X225-2/0-350-L20
2. 6322

1PH Standard Wiring

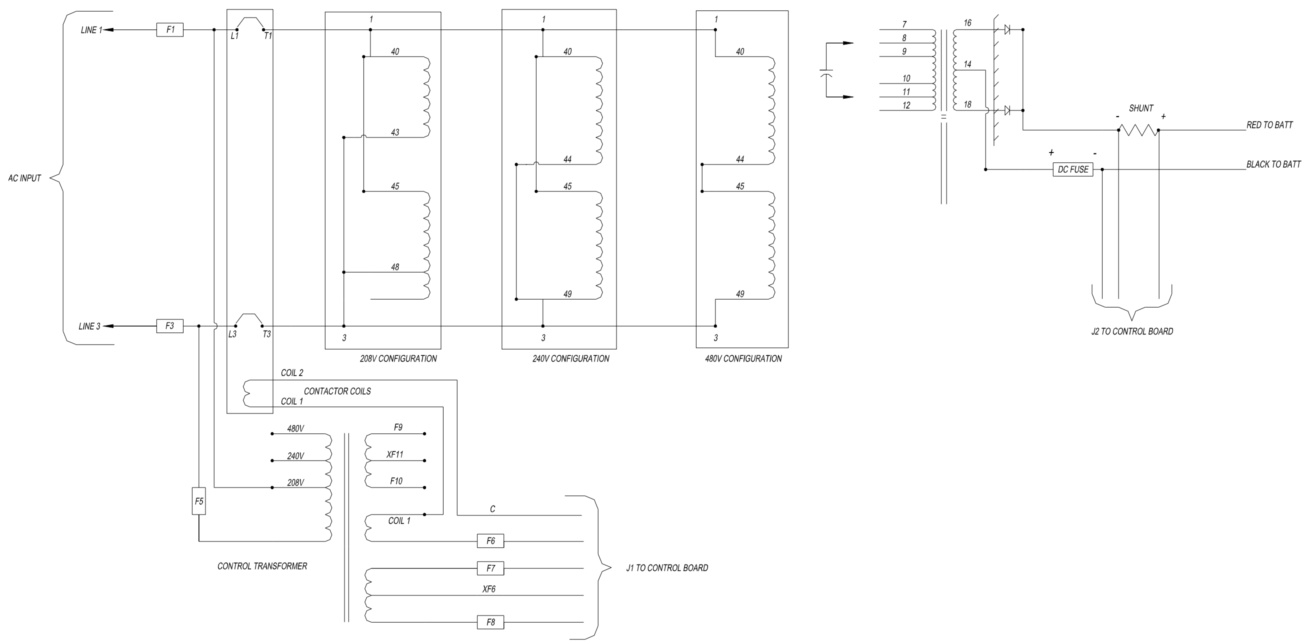


3PH Standard Wiring

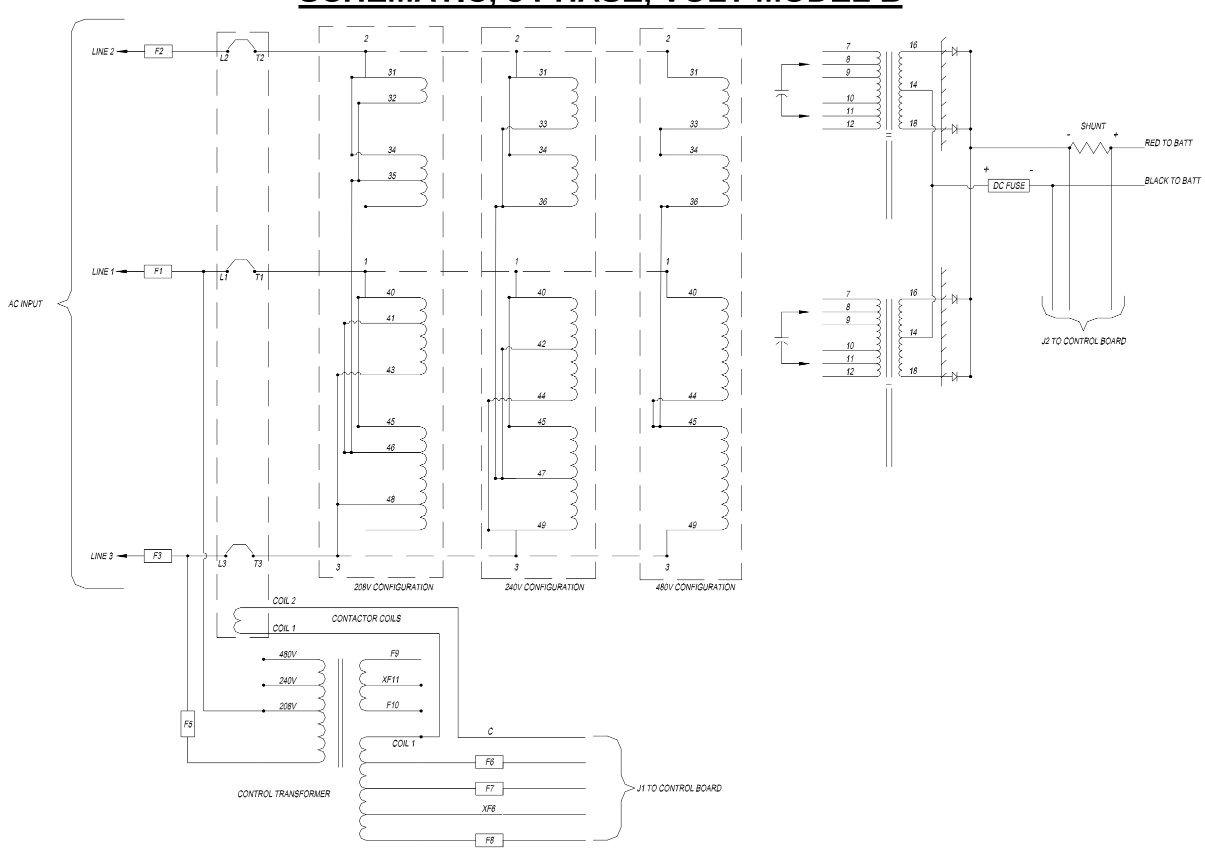
NOTE: For T3, see wiring connection charts.



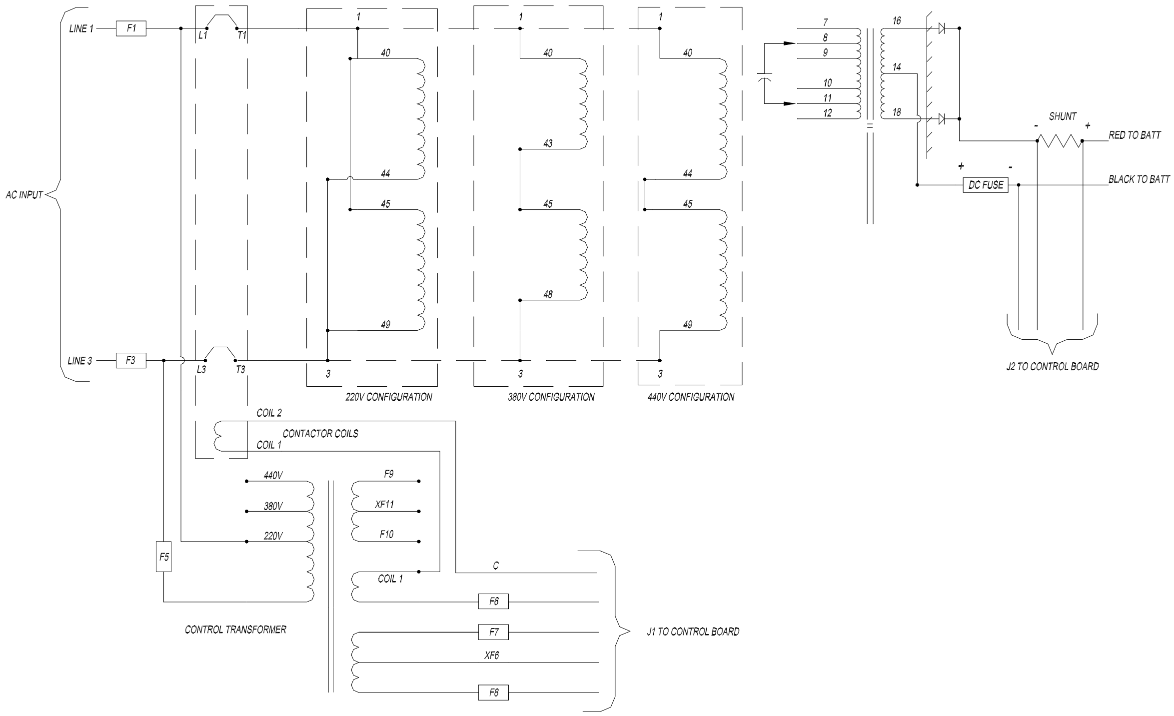
SCHEMATIC, 1 PHASE, VOLT MODEL B



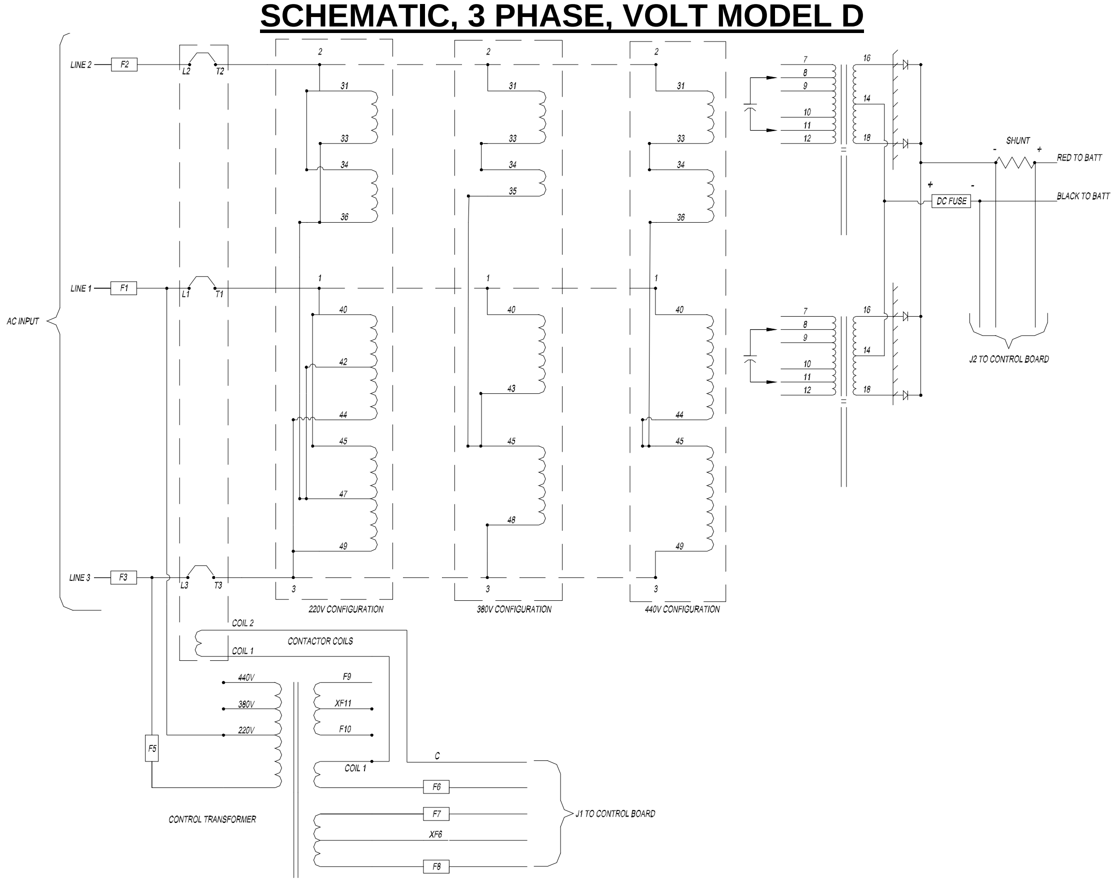
SCHEMATIC, 3 PHASE, VOLT MODEL B



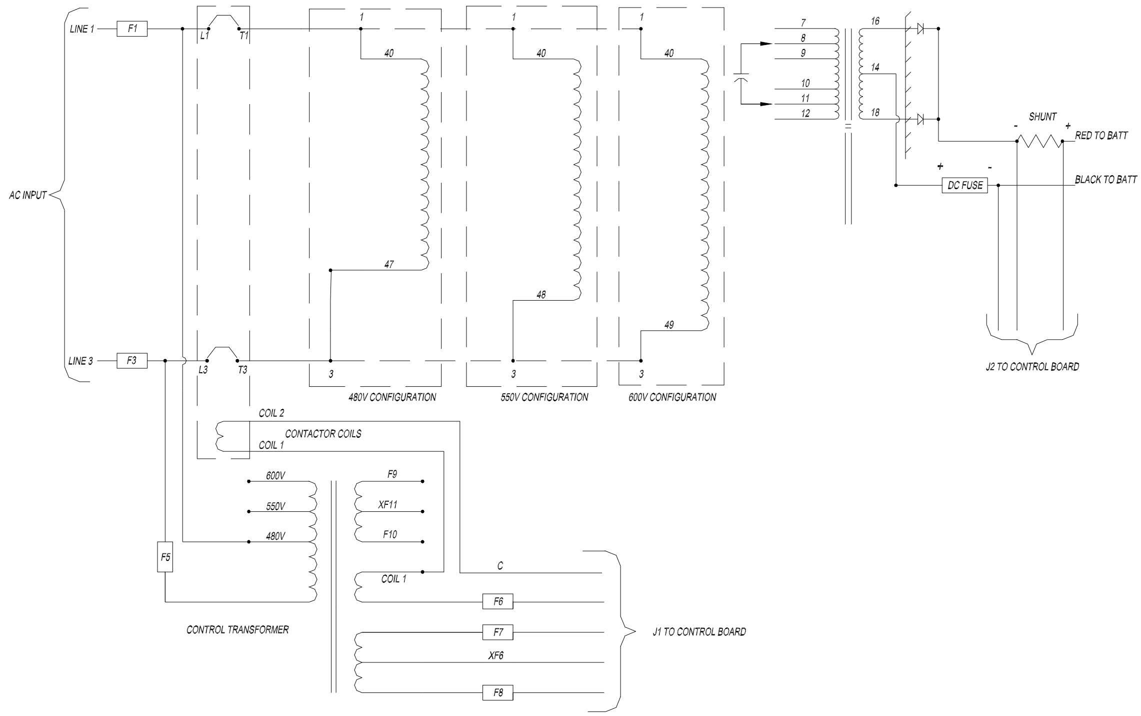
SCHEMATIC, 1 PHASE, VOLT MODEL D



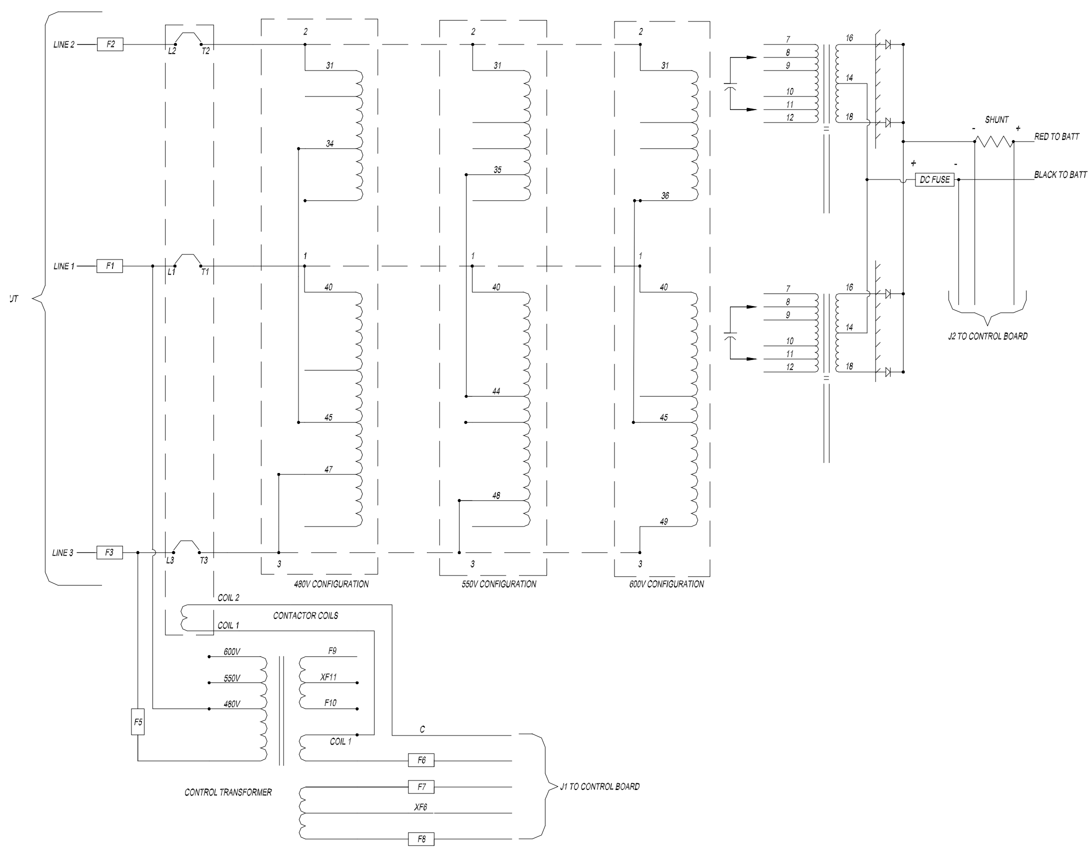
SCHEMATIC, 3 PHASE, VOLT MODEL D



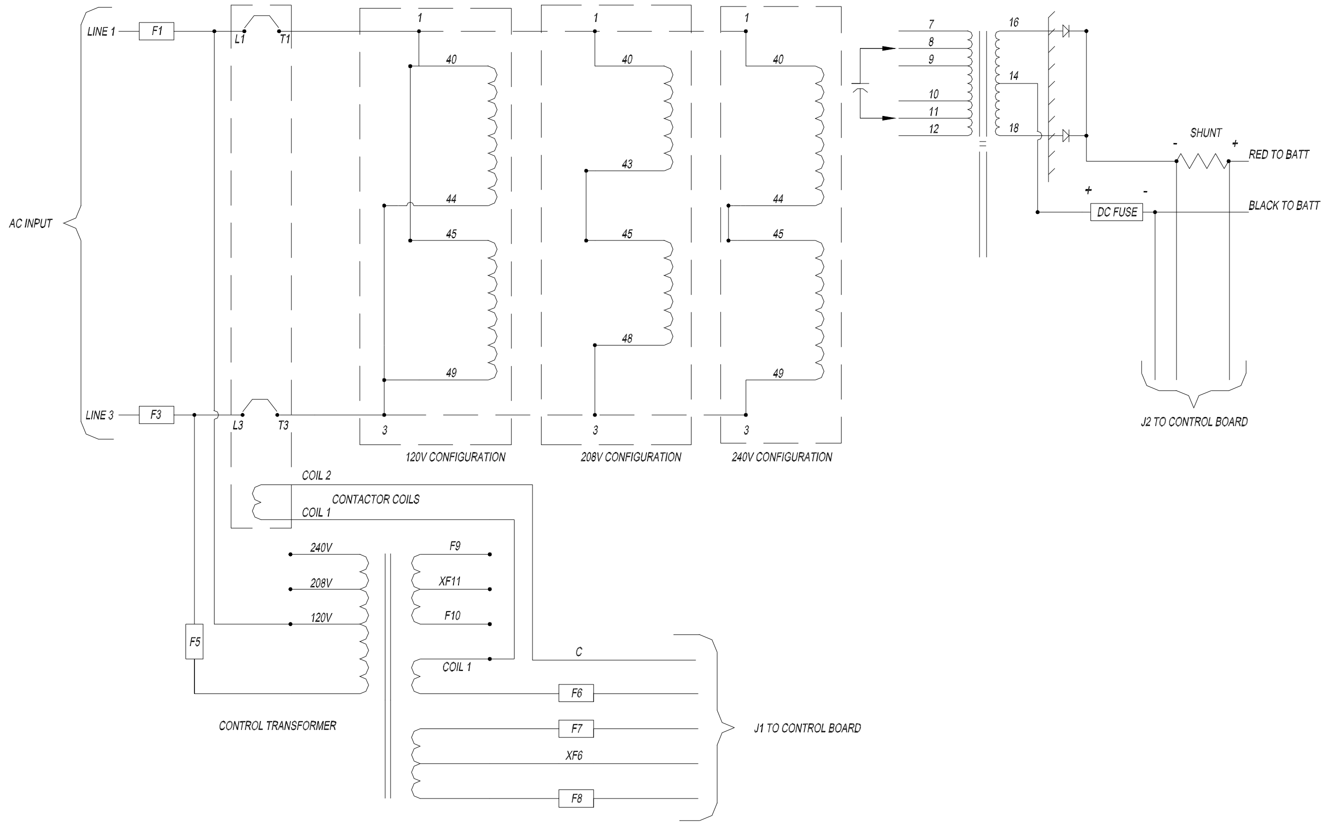
SCHEMATIC, 1 PHASE, VOLT MODEL J



SCHEMATIC, 3 PHASE, VOLT MODEL J



SCHEMATIC, 1 PHASE, VOLT MODEL A



MAINTENANCE LOG

1. Modifications to Factory Settings

Date	Variable	Change	Service Technician

2. Service

Date	Description	Service Technician